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National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
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NMFS Tracking
No. 2004/00227

July 22, 2004

Daniel M. Mathis
Division Administrator
Federal Highway Administration
711 S. Capitol Way, Suite 501
Olympia, Washington 98501

Re: Endangered Species Act Section 7 Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation: Columbia River Road Omak Creek Bridge Replacement, Okanogan County (HUC 170200060409, Lower Omak Creek)

Dear Mr. Mathis:

In accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1536), and the Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (16 U.S.C. 1855), the attached document transmits NOAA's National Marine Fisheries Service (NOAA Fisheries) Biological Opinion (Opinion) and Essential Fish Habitat (EFH) consultation on the proposed Columbia River Road Omak Creek Bridge Replacement, Okanogan County, Washington.

The Federal Highway Administration (FHWA) has determined that the proposed action was likely to adversely affect the Upper Columbia River (UCR) steelhead (*Oncorhynchus mykiss*) Evolutionarily Significant Unit (ESU). Formal consultation was initiated on March 11, 2004.

This Opinion reflects formal consultation and an analysis of effects covering listed UCR steelhead in Omak Creek approximately 0.75 miles upstream of the confluence with the Okanogan River, Okanogan County, Washington. The Opinion is based on information provided in the Biological Assessment (BA) and EFH assessment received by NOAA Fisheries



on March 11, 2004, an amended BA and EFH assessment received on March 26, 2004, and subsequent information transmitted by mail, telephone conversations, and email. A complete administrative record of this consultation is on file at the Washington State Habitat Office.

NOAA Fisheries concludes that the implementation of the proposed project is not likely to jeopardize the continued existence of UCR steelhead. Please note the incidental take statement, which includes Reasonable and Prudent Measures and Terms and Conditions, was designed to minimize take. For MSA consultation, NOAA Fisheries concluded that the proposed project will not adversely affect designated EFH for chinook (*O. tshawytscha*) salmon, because chinook do not currently inhabit the Omak Creek watershed.

If you have any questions, please contact Neil Rickard of my staff at the Washington State Habitat Office at (360) 753-9090, by email at neil.rickard@noaa.gov, or by mail at the letterhead address.

Sincerely,

A handwritten signature in cursive script that reads "Russell M. Strach for".

D. Robert Lohn
Regional Administrator

Enclosure

Endangered Species Act - Section 7 Consultation
Biological Opinion
and
Magnuson-Stevens Fishery Conservation and
Management Act
Essential Fish Habitat Consultation

Columbia River Road Omak Creek Bridge Replacement
Okanogan County, Washington

Agency: Federal Highway Administration

Consultation
Conducted By: National Marine Fisheries Service

Date Issued: July 22, 2004

Issued by: 
D. Robert Lohn
Regional Administrator

NMFS Tracking Number: 2004/00227

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1.0 INTRODUCTION

This document is the product of an Endangered Species Act (ESA) section 7 formal consultation and Magnuson-Stevens Fishery Conservation and Management Act (MSA) Essential Fish Habitat (EFH) consultation between NOAA's National Marine Fisheries Service (NOAA Fisheries) and the Federal Highway Administration (FHWA) for the proposed Columbia River Road Omak Creek Bridge Replacement, Okanogan County, Washington. The action area is within the geographic range of the Upper Columbia River (UCR) steelhead (*Oncorhynchus mykiss*) Evolutionarily Significant Unit (ESU), listed as endangered under the ESA. Additionally, the action area is designated as EFH for chinook (*O. tshawytscha*) salmon.

This document presents NOAA Fisheries' Biological Opinion (Opinion) on whether the proposed action is likely to jeopardize the continued existence of the UCR steelhead ESU. Further, this document indicates if the proposed action will adversely affect designated chinook salmon EFH. These ESA and EFH determinations are reached by analyzing the biological effects of construction activities related to the bridge replacement, relating those effects to the biological and ecological needs of the listed species or designated EFH, and then adding these effects to the environmental baseline of the action area.

1.1 Background and Consultation History

The project will be funded in whole or part by the FHWA. The funding will pass through the Washington State Department of Transportation (WSDOT), and the project will be constructed by the funding recipient, the Okanogan County Department of Public Works (OCDPW).

On March 11, 2004, NOAA Fisheries received a Biological Assessment (BA) and EFH assessment for the project described above, and a request for ESA section 7 formal consultation and MSA consultation. The FHWA concluded that the proposed action is Likely to Adversely Affect UCR steelhead but will have no adverse impact on EFH for chinook salmon. An amended BA and EFH assessment for the proposal was received from WSDOT on March 26, 2004. NOAA Fisheries' April 13, 2004 letter to the FHWA indicated that formal consultation was initiated on the date of receipt of the original BA.

On March 18, 2004, representatives from NOAA Fisheries, the WSDOT, the OCDPW, the Colville Confederated Tribe (CCT) Department of Fish and Wildlife met on-site to review the proposed project and answer questions posed by NOAA Fisheries in a March 17, 2004 electronic mail (email) to the WSDOT.

This document is based on information provided in the BA and subsequent addenda, all supporting documents, EFH assessment, and correspondence received from the applicant via site visits, phone calls, post and email. All correspondence is documented in the administrative record, located in the Washington State Habitat Office, Lacey, Washington.

1.2 Description of the Proposed Action

1.2.1 Bridge Replacement and Road Realignment

The FHWA will fund replacement of an existing bridge with a 32.33-foot wide, 8.25-foot high, 116-foot long open bottom arched metal culvert fastened to precast concrete footings. The footings will be located outside the 22-foot wide ordinary high water mark (OHWM) and will be installed at a 2.12% slope, with the bottom of the footings buried approximately 3.25 feet below the stream bed. Approximately 65 cubic yards of bank and historical bed material will be excavated for installation of the footings. The new culvert is sized to pass the 100-year flood event and was designed utilizing the Stream Simulation Model contained in the 2001 draft of the Design of Road Culverts for Fish Passage (WDFW 2001). Approximately 415 cubic yards of clean fill material will be compacted around the culvert, clean ballast will be placed over the top of the culvert, and asphalt surfacing will be applied. The headwalls will be constructed of welded wire baskets filled with rock and will retain the highway fill.

The existing bridge abutment, wingwalls, and pre-cast concrete deck sections will be removed by mechanical means. The existing bridge footings are scheduled to be removed, but may be left beneath the streambed substrate if impacts are increased by their complete removal. The existing bridge structures will be reduced to manageable sized sections to facilitate removal (the size will be dependent on available equipment). Approximately 3,000 cubic yards of roadway fill and bank material will be removed to accommodate the larger open bottomed culvert. Approximately 45 cubic yards of streambed will be excavated if the old footings are removed.

The OCDPW will realign the existing intersection and bridge approaches, and widen them from 25 feet to 32 feet with 4-foot gravel shoulders to smooth the existing substandard curve at the intersection. Mechanically-stabilized earth will support the new roadway on the waterward side and will provide some stormwater filtration. The project site currently includes 15,533 square feet of impervious surface, which will increase to 21,160 with the roadway widening. Stormwater is currently treated by 2,254 square feet of roadside ditch. Stormwater generated by the widened roadway will be treated and infiltrated in two, two-stage water quantity detention and water quality infiltration ponds and a bio-swale.

1.2.2 Work Area Isolation and Fish Removal

The work area isolation diversion and bypass will consist of a sandbag and plastic sheet headwall placed upstream of the limits of construction, a 36-inch pipe laid in the streambed center of flow, and a downstream sandbag and plastic sheet headwall placed downstream of the footing installation and outside the active work area. The bypass will extend a total distance of approximately 216 feet. The OCDPW will construct the bypass with sufficient size to pass all flows for the duration of the project and will retain it in place during bridge replacement. The CCT has authorized the WSDOT to utilize the Fish Removal Protocol contained in Appendix I to remove listed fish from the work area prior to dewatering the existing channel. Authorized individuals from the CCT will complete all fish removal activities (Fisher 2004)

1.2.3 Vegetation Removal, Bank Protection, and Revegetation

During construction, the OCDPW will remove approximately 1,250 square feet of riparian vegetation, primarily cottonwoods, willows, and native grasses, 50 linear feet upstream and 400 linear feet downstream of the existing bridge. The cottonwoods and willows will be saved for replanting if practicable. The creek banks at both ends of the replacement culvert will be contoured to a 2-to-1 slope and armored with approximately 500 cubic yards of riprap placed approximately four feet landward of the OHWM. Riprap will extend approximately 40 feet upstream and 225 feet downstream of the replacement culvert. Upon completion of the project in October 2004, areas of vegetation removal will be seeded with drought-resistant native grasses and trees that were saved will be replanted. New trees will be planted at a 3-to-1 ratio, with five willows planted unequally spaced above the OHWM on each bank and two cypress planted above the willows on each bank. In addition, 20 willows will be planted along approximately 1,000 feet of the downstream bank on the north side of the culvert.

1.2.4 Conservation Measures

The proposed project design incorporates the following conservation measures to avoid, minimize, or offset the impacts to UCR steelhead, and their habitat:

- All bridge replacement and channel diversion work will occur within the inwater work window set by the CCT, July 15, 2004 through October 31, 2004 (Fisher 2004).
- Silt fences will be placed on both sides of the creek between all disturbed areas and the creek channel.
- All wastewater from project activities and ground water present will be removed from within the work area and routed to an area landward of the OHWM to allow the water to infiltrate through the existing substrate.
- The stormwater treatment system will be designed and constructed to specifications contained in the *WSDOT Highway Runoff Manual* (WSDOT 2004).
- Tarps or approved plastic sheeting will be placed over the temporary bypass and along the streambed to contain any material falling from the existing bridge as it is being removed and from the footings and new box culvert as they are being installed.
- All work will be in compliance with the implementing agreement (IA) between the Department of Ecology (DOE) and the WSDOT regarding "Compliance with State of Washington Surface Water Quality Standards" for turbidity limits within the project area (DOE and WSDOT 1998).
- All culvert replacement and roadway repair activities will remain consistent with the Temporary Erosion and Sediment Control (TESC) plan chapters of the most recent versions

of the *WSDOT Highway Construction Manual*, *Highway Runoff Manual* (March 2004), and *Standards and Specifications for Road, Bridge, and Municipal Construction*.

- The contractor will develop and implement a Standard Pollution Prevention Control and Countermeasures (SPCC) plan that will prevent the risk of spills and establish an efficient response strategy in the event of a spill.
- Alteration and/or disturbance of the bank and bank vegetation will be confined to the staked limits of the project. Within seven days of project completion, all disturbed areas will be protected from erosion using erosion control matting, blankets, or other earth stabilizing technology. Planting and seeding of the project area will occur during the appropriate season to optimize planting survival rates.
- All equipment will work from the bank, roadway, or dewatered area outside the creek flow.
- Equipment used for this project will be free of external petroleum based products while working around the water. Equipment used within the wetted perimeter of the stream will be cleaned and free of deleterious material prior to commencement of work. Equipment shall be checked daily for leaks and any necessary repairs will be completed prior to commencing work activities along the creek.
- Any staging areas and stockpiles of material needed during construction will be established a minimum of 100 feet from the top of the bank. These areas will be established outside sensitive habitat areas (e.g wetlands).
- Bridge debris will be disposed of off-site at a WSDOT-approved location.

1.3 Description of the Action Area

The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02). For the purposes of this consultation, the action area includes Omak Creek from the upstream limits of construction (approximately 100 feet upstream of the existing bridge) to the downstream limit of riparian revegetation (approximately 1,000 feet downstream of the culvert). The action area also includes the adjacent riparian zone within the construction area and all areas affected by the project including any staging areas and roadways.

2.0 ENDANGERED SPECIES ACT

2.1 Biological Opinion

The purpose of consultation under the ESA is to ensure that any action authorized, funded or carried out by a Federal agency is not likely to jeopardize the continued existence of threatened or endangered species and/or whether the action is likely to destroy or adversely modify critical habitat.

The effects of the project on the UCR steelhead ESU are analyzed below; an ESU is a distinct population segment that is available for ESA protection, consistent with section 3(16) of the ESA. Critical habitat is not currently designated for UCR steelhead, so the destruction and/or adverse modification analysis does not appear below. Formal consultation concludes with the issuance of an Opinion under section 7(b)(3) of the ESA.

2.1.1 Evaluating the Effects of the Proposed Action

The standards for determining jeopardy as set forth in section 7(a)(2) of the ESA are defined by 50 CFR Part 402 (the consultation regulations). NOAA Fisheries' analysis of whether the action is likely to jeopardize the listed species includes the initial steps of (1) defining the biological requirements of the listed species, and (2) evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NOAA Fisheries evaluates whether the action is likely to jeopardize the listed species by determining if likelihood of the species' survival and recovery is appreciably reduced. In making this determination, NOAA Fisheries must consider the estimated level of injury and mortality attributable to: (1) collective effects of the proposed or continuing action, (2) the environmental baseline, and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed species' life history stages that occur beyond the action area. If NOAA Fisheries finds that the action is likely to jeopardize listed species, NOAA Fisheries must identify reasonable and prudent alternatives for the action.

2.1.1.1 Biological Requirements

The relevant biological requirements are those conditions necessary for UCR steelhead to survive and recover to such naturally reproducing population levels that protection under the ESA will become unnecessary. Such population levels must be large enough and have population spatial structure adequate to safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment with a high likelihood of persistence over long time spans, despite a wide range of environmental and anthropogenic variations and disturbances.

The biological requirements for UCR steelhead include sufficient food, available flowing water (quantity), high quality water (cool, free of pollutants, high dissolved oxygen (DO) concentrations, low sediment content), clean spawning substrate, and unimpeded migratory access to and from spawning and rearing areas (adapted from Spence et al. 1996).

NOAA Fisheries has related the biological requirements for listed salmonids to a number of habitat attributes, or pathways, in the Matrix of Pathways and Indicators (NMFS 1996b). These pathways (Water Quality, Habitat Access, Habitat Elements, Channel Condition and Dynamics, Flow/Hydrology, Watershed Conditions, Disturbance History, and Riparian Reserves) indirectly measure the baseline biological health of listed salmonid populations through the health of their habitat. Specifically, each pathway is made up of a series of individual indicators (e.g., indicators for Water Quality include Temperature, Sediment, and Chemical Contamination) that

are measured or described directly (NMFS 1996b). Based on measurement or description, each indicator is classified within a category of the properly functioning condition (PFC) framework: (1) properly functioning, (2) at risk, or (3) not properly functioning. The PFC is defined as “the sustained presence of natural habitat forming processes in a watershed that are necessary for the long-term survival of the species through the full range of environmental variation.”

The specific pathway indicators that will be affected by the proposed action include water quality, channel condition, streambank condition, flow/hydrology, and riparian reserves. In the BA, WSDOT indicates that the Columbia River Road Omak Creek Bridge Replacement will improve the streambank condition and channel confinement pathway indicators, temporarily degrade the sediment pathway indicator, and maintain the remaining pathway indicators.

2.1.1.2 Status and Generalized Life History of Upper Columbia River Steelhead

The UCR steelhead ESU was listed as endangered under the ESA on August 18, 1997 (62 FR 43937), with protective regulations promulgated on July 10, 2000 (65 FR 42422). This ESU includes all natural-origin populations of steelhead in the Columbia River basin upstream from the Yakima River in Washington, to the U.S./Canada border. The Wells Hatchery stock is included among the listed populations.

Geographic Boundaries and Spatial Distribution

The UCR steelhead ESU includes all naturally spawned populations of steelhead (and their progeny) in streams adjacent to the mainstem Columbia River upstream of the confluence of the Yakima River to the tailrace of Chief Joseph Dam. NOAA Fisheries has initially identified three important spawning populations within this ESU: the Wenatchee, Entiat, and Methow populations (Interior Technical Recovery Team 2003). The upper extent of anadromy is always a subset of the residency distribution and is a function of growth potential as defined by the environment and genetic predilection (Mullan *et al.* 1992). While critical habitat is not presently designated for UCR steelhead, a designation may be forthcoming.

Life History

Life history characteristics for UCR steelhead are similar to those of other inland steelhead ESUs; however, smolt age is dominated by 2- and 3-year-olds and some of the oldest smolt ages for steelhead, up to 7 years, are reported from this ESU (Peven 1990). Based on limited data, steelhead from the Wenatchee and Entiat rivers return to freshwater after one year in salt water, whereas Methow River steelhead primarily return after two years in salt water. Similar to other inland Columbia River basin steelhead ESUs, adults typically return to the Columbia River between May and October and are considered summer-run steelhead. Adults may remain in freshwater up to a year before spawning. Unlike chinook, chum, or sockeye salmon, a fraction of steelhead adults attempt to migrate back to the ocean. These fish are known as kelts, and those that survive will migrate from the ocean to their natal stream to spawn again.

Population Trends and Risks

On April 4, 2002, NOAA Fisheries released interim abundance targets for spawning populations that comprise this ESU and a composite productivity objective for the ESU (Lohn 2002). The productivity target of 1.0 or greater, is a geometric mean natural return rate over a sufficient length of time to ensure survival and recovery of the ESU. The interim abundance targets are 2,500 natural spawners in the Wenatchee Subbasin, 500 spawners in the Entiat Subbasin, and 2,500 spawners in the Methow Subbasin. NOAA Fisheries developed these interim targets to help subbasin and recovery planners understand the approximate scale of improvement that will likely be needed to recover this ESU. NOAA Fisheries expects that these targets will change as better information is developed through these planning efforts.

Returns of both hatchery and naturally-produced steelhead to the Upper Columbia River have increased in recent years. The average 1997-2001 return counted through the Priest Rapids fish ladder was approximately 12,900 fish. The average for the previous five years (1992-1996) was 7,800 fish. Abundance estimates of returning, naturally produced UCR steelhead have been based on extrapolations from mainstem dam counts and associated sampling information (e.g., hatchery/wild fraction, age composition). The natural component of the annual steelhead run over Priest Rapids Dam increased from an average of 1,040 (1992-1996), representing about 10% of the total adult count, to 2,200 (1997-2001), representing about 17% of the adult count during this period of time (West Coast Salmon BRT 2003).

In terms of natural production, recent population abundances for both the Wenatchee and Entiat aggregate population and the Methow population remain well below the interim recovery levels developed for these populations (West Coast Salmon BRT 2003). A 5-year geometric mean (1997-2001) of approximately 900 naturally-produced steelhead returned to the Wenatchee and Entiat rivers (combined) compared to a combined abundance target of 3,000 fish. Although this is well below the interim recovery target, it represents an improvement over the past (an increasing trend of 3.4% per year). However, the average percentage of natural fish for the recent 5-year period dropped from 35% to 29%, compared to the previous status review. For the Methow population, the 5-year geometric mean of natural returns over Wells Dam was 358. Although this is well below the interim recovery target, it is an improvement over the recent past (an increasing trend of 5.9% per year). In addition, the estimated 2001 return (1,380 naturally produced spawners) was the highest single annual return in the 25-year data series. However, the average percentage of wild origin spawners dropped from 19% for the period prior to the 1998 status review to 9% for the 1997 to 2001 returns. Based on 1980-2000 returns, the median population growth rate (λ) for UCR steelhead is estimated at 1.00; however the 95% confidence interval is 0.66 to 1.52 (McClure *et al.* 2003). A population with a growth rate of less than 1.0 is non-viable. This estimate is based on the assumption that hatchery fish are not reproducing and not masking the true population growth rate; if hatchery fish are reproducing, the estimated population growth rate would be less than 1.00, indicating low, non-viable natural reproduction and survival (McClure *et al.* 2003).

2.1.1.3 Status of the Species within the Action Area

Based upon observations and adult steelhead collected at a picket-weir located in Omak Creek, summer steelhead return to Omak Creek beginning the last week of March through April, with the peak occurring during the first week of April (CCT 2002). Streamnet (2004) indicates that approximately 21% of the lower 5.6 miles of Omak Creek is used by UCR steelhead, primarily for migration.

Redd surveys were conducted at two reaches within the lower 5 miles of the creek during May of 2002. A total of 40 redds were identified, two of which were located within the action area at approximately River Mile (RM) 0.5, with the remaining redds located between RM 2.9 to RM 4.6. Fry begin emerging from redds during the last week in May (CCT 2002). However, prior to the 2002 and 2003 CCT project to stabilize the creek, enlarge the floodplain, and establish riparian vegetation, Omak Creek was most unfavorable to fry survival during the summer months when high water temperatures occur (C. Fisher, pers. comm. in CCT 2002).

2.1.1.4 Environmental Baseline

The environmental baseline represents the current set of conditions to which the effects of the proposed action would be added. The term “environmental baseline” means “the past and present impacts of all Federal, state, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of state or private actions which are contemporaneous with the consultation in process” (50 CFR 402.02).

Throughout the Columbia Basin, salmonids have been negatively affected by a combination of habitat alteration and hatchery management practices. Mainstem dams on the Columbia River are perhaps the most significant source of habitat degradation for the ESU addressed under this consultation. The dams act as a partial barrier to passage, kill out-migrating smolts in their turbines, raise temperatures throughout the river system, and have created lentic refugia for salmonid predators. In addition to dams, irrigation systems have had a major negative impact by diverting large quantities of water, stranding fish, acting as barriers to passage, and returning effluents containing chemicals and fine sediments. Other major habitat degradation has occurred through urbanization and livestock grazing practices (WDF and WDW 1993; Busby *et al.* 1996; NMFS 1996a and 1998; April 22, 1992, 64 FR 14308; August 18, 1997, 62 FR 43937). These habitat alterations and differential habitat availability (*e.g.*, fluctuating discharge levels) impose an upper limit on the production of naturally spawning populations of salmon and steelhead. The National Research Council Committee on Protection and Management of Pacific Northwest Anadromous Salmonids identified habitat problems as a primary cause of declines in wild salmon runs (NRCC 1996). Some of the habitat impacts identified were the fragmentation and loss of available spawning and rearing habitat, migration delays, degradation of water quality, removal of riparian vegetation, decline of habitat complexity, alteration of stream flows and streambank and channel morphology, alteration of ambient stream water temperatures, sedimentation, and loss of spawning gravel, pool habitat, and large woody debris (LWD), (NMFS 1996a and 1998; NRCC 1996; Bishop and Morgan 1996).

Omak Creek is a fourth order tributary of the Okanogan River that flows into the mainstem at RM 31. Omak Creek is the only perennial tributary of the Okanogan River within the U. S. that is not altered by irrigation use or restricted by a dam (CCT 2002). Elevations within the sub-basin range from 860 feet above sea level at the Omak Creek confluence with the Okanogan River to 6,774 feet at Moses Mountain. The climate of the watershed varies from arid to montane, with an average annual precipitation of 12 inches in the lower elevations to over 45 inches at Moses Mountain. Average daily temperatures range from 23 degrees Fahrenheit in winter to 70 degrees Fahrenheit in the summer (Talayco 2001 *in* NMFS 2002).

There are 90,683 acres in the Omak Creek watershed; 73,029 acres are owned and managed by the CCT, of which 63,565 acres are managed as commercial forest (NRCS 1995 *in* NMFS 2002). Past logging practices, and fire suppression have changed the forest species composition, structure and density. These practices have led to over-stocked forest stands throughout the watershed that are susceptible to disease, insects and fire. Current logging practices include prescribed burning, pre-commercial thinning, and harvest of disease-stricken trees. Livestock graze most of the forest and range areas in the watershed. Sixty percent of the rangeland in the watershed currently supports a heavy concentration of livestock, and excessive grazing along riparian areas has significantly degraded riparian conditions in some areas. Fifteen percent of the rangeland is in fair condition and only 25 percent is in either good or excellent condition (NRCS 1995 *in* NMFS 2002). Water distribution in the uplands is inadequate to meet most agricultural and rangeland needs (NRCS 1995 *in* NMFS 2002).

No environmental baseline is presented in the BA. For the current environmental baseline, NOAA Fisheries relies on the environmental baseline and analysis of effects contained in the 2002 BA for the Omak Creek Stream Channel Reconfiguration and Bank Stabilization (OCSCRBS) project prepared by the CCT (CCT 2002). That project, funded by the Bureau of Indian Affairs and undertaken by the CCT, was designed to improve fish passage and habitat quality, particularly streambed composition, and reduce peak water temperatures through riparian plantings along two reaches in the lower 5 miles of the creek (NMFS 2002). Immediately downstream of the Columbia River Road Omak Creek bridge replacement project site, approximately 2,800 feet of lower Omak Creek channel was excavated to allow for floodplain development and the bank slopes were contoured to increase stability and reduce erosion. The project placed large bed elements (2 to 4 feet in diameter) in the channel to dissipate erosive forces from high-energy flows and create pools to provide fish holding areas. The resulting channel was designed to allow adult and juvenile UCR steelhead passage at both high and low flows. The newly created floodplain and stabilized bank were vegetated with native riparian vegetation. Between RM 2.9 and RM 4.6 of the creek, streambanks were stabilized with 40 instream structures to direct high-energy flows away from actively eroding banks and the banks planted with riparian vegetation (CCT 2002). The resulting channel was designed to maintain channel stability (bed and bank), likely improve incubation and emergence of steelhead, and improve fry survival due to decreased stream temperatures (NMFS 2002). The BA for the OCSCRBS project concluded that, following construction, some improvement could be expected, but all of the pathway indicators in the vicinity of the action area would still either be functioning at risk or not properly functioning, with the exception of floodplain connectivity and disturbance history (CCT 2002).

Water Quality. Water temperatures within lower Omak Creek have been measured since 1997. Peak water temperatures have exceeded 75 degrees Fahrenheit for the past five years with the highest water temperature recorded in 1997 at 79.9 degrees Fahrenheit (CCT, unpublished data in NMFS 2002). Temperatures in excess of 75 degrees are lethal for steelhead (Bjornn and Reiser 1991). Water temperatures in the lower 5 miles of Omak Creek are not properly functioning as habitat, however improvement was anticipated as a result of the OCSCRBS project (CCT 2002). Accelerated sediment yield from livestock grazing on the uplands and streambanks was identified as one of the main factors affecting water quality in the creek (NRCS 1995 in NMFS 2002). Roads were also identified as a significant source of sediment to Omak Creek and connected tributaries (NRCS 1995 in NMFS 2002). Surveys conducted by CCT during 1995, also identified excessive sediment deposition (embeddedness, 56.8 to 79.8%) in Trail Creek, a tributary of Omak Creek. The OCSCRBS project should substantially reduce the amount of sediment delivered to lower Omak Creek, but water quality remains not properly functioning (CCT 2002).

Habitat Access. There is currently a partial barrier to fish passage on the mainstem of Omak Creek at Mission Falls (RM 5.1), a remnant of rail system construction in the 1920's. However, during the spring of 2002, adult steelhead were observed several miles upstream of the falls. As a result, upstream fish passage is functioning at risk (CCT 2002).

Habitat Elements. Fish spawning surveys by the CCT found that fine sediment averaged 17.3% across eight sampling sites in lower Omak Creek. This percentage appears relatively low, likely the result of sampling in riffles and areas of higher velocity. Areas of lower velocities and preferred spawning sites are likely to have greater amounts of fine sediment. Therefore, substrate in lower Omak Creek is not functioning properly as spawning habitat, but was expected to improve as a result of the OCSCRBS project (CCT 2002). The LWD is substantially deficient in Omak Creek from RM 1.5 to RM 5.0 as a result of livestock overgrazing in the riparian reserves. However, the OCSCRBS project placed over 1,500 pieces of LWD in the lower creek for instream structures. Lower Omak Creek is still not properly functioning habitat in terms of LWD, but is vastly improved (CCT 2002). The frequency of pools in Lower Omak Creek was deficient, due in part to the high level of sediment embeddedness from eroding stream banks and roads. Pool frequency and quality has been functioning at risk, but will improve in response to the OCSCRBS project (CCT 2002).

Channel Conditions and Dynamics. Surveys of two reaches in lower Omak Creek showed width-to-depth ratios of 2.46 and 5.38. Analysis of data collected during 1995, indicated that sedimentation from eroding stream banks and roads was substantial enough to increase width-to-depth ratios in the lower reach, thereby reducing the available rearing habitat. Lower Omak Creek width-to-depth ratio is identified as "functioning at risk," but is expected to improve as a result of the installation of instream structures and narrowing of the stream channel associated with the OCSCRBS project (CCT 2002). Recent observations throughout the Omak Creek watershed indicate that bank erosion is occurring along several reaches of the creek. Reduction in riparian woody plant species resulting from livestock grazing and absence of associated root systems has caused extensive bank erosion. The OCSCRBS project stabilized approximately

6,000 feet of lower Omak Creek. However, the streambank condition is still functioning at risk (CCT 2002).

Flow and Hydrology. The Omak Creek watershed contains over 900 miles of road, with a drainage network of over 141 square miles. Roads and road density, currently approximately 3.6 miles of road per square mile, are probably the leading factors contributing to sediment in Omak Creek. Road densities of 4.0 miles per square mile have been found to produce sediment more than four times the natural erosion rate (Cederholm 1981 *in* CCT 2002). As a result, the watershed's drainage network is not properly functioning (CCT 2002).

Watershed Conditions. Riparian vegetation in the Omak Creek watershed is estimated to be 54% deciduous and 46% coniferous, with riparian vegetation along the lower 5.1 miles of the creek fragmented. Lack of spring development and inadequate fencing allow livestock access to stream corridors. This has caused severe over-use of riparian vegetation and streambank failure (NRCS 1995 *in* NMFS 2002). During 2000, canopy closure (an indicator of overhead cover) was randomly measured throughout lower Omak Creek with the greatest percentage of canopy closure measuring 36%. More recently, canopy closure measurements ranged from 0 to 50% and averaged 30%. Over-wintering livestock were the causal mechanism for reduced canopy closure in this area. Although riparian revegetation was a significant component of the OCSCRBS project, loss of riparian function is expected for a number of years following project completion. As a result, riparian reserves are not properly functioning (CCT 2002).

Habitat conditions in the vicinity of the action area are heavily influenced by livestock grazing and road density. Although there were few over-wintering livestock, approximately 50 head, grazing in the riparian zone of lower Omak Creek and the surrounding upland areas. Impacts to riparian vegetation and stream banks were severe. The reduction of woody plant species and absence of associated root systems have caused the banks to erode. In 2001, a tribal resolution was passed which excludes livestock from this area of the watershed for 50 years (CCT 2002). As stated previously, roads and road density are probably the leading factors contributing to sediment in Omak Creek. Current road densities in the vicinity of the action area greatly exceed NOAA Fisheries guidelines of less than 2 miles of road per square mile. However, funding has been secured through state and Federal mitigation programs to reduce road sections deleterious to aquatic resources. Forty miles of roads were decommissioned during 2000, and an additional 30 miles were decommissioned in 2003 (CCT 2002).

2.1.1.5 Relevance of the Environmental Baseline to the Species' Current Status

Presently, because of the degraded conditions as described in the preceding section, the environmental baseline in the action area does not meet all of the biological requirements for UCR steelhead. The status of UCR steelhead as an endangered species is in part a function of declining conditions in the species' environment. Although land management actions such as timber harvest and livestock grazing have degraded environmental conditions in Lower Omak Creek, their contribution to the current status of UCR steelhead is relatively minor due, in part, to the small size of the watershed and the watershed's limited natural carrying capacity (CCT 2002). The major contributing factors to the current status of the ESU lie outside the action area.

As described above, various anthropogenic features such as modified floodplains, hardened banks and levees, disruption of hydrological processes, and eliminated or decreased access to spawning and rearing areas resulting from the construction of numerous dams and irrigation systems, as well as agricultural and forest practices and urbanization, have negatively influenced the biotic features necessary to support self-sustaining populations of steelhead. While other factors, such as ocean conditions, harvest levels, and natural mortality from predation and disease, influence the current status of this ESU, the baseline conditions throughout the ESU contribute to the net effect of depressing the populations' viability.

2.1.2 Analysis of Effects

NOAA Fisheries' effects analysis includes the probable direct and indirect effects of the action on UCR steelhead "together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline" (50 CFR 402.02.). NOAA Fisheries also evaluates the changes to steelhead habitat caused by the proposed action, relying in part on the Habitat Approach (NMFS 1999). Changes resulting from the proposed action are expressed in terms of whether they are likely to *restore*, *maintain*, or *degrade* an indicator of steelhead habitat function. By examining the effects of the proposed action on the habitat components of a species' biological requirements, NOAA Fisheries can gauge how the action will affect the population variables that constitute the rest of a species' biological requirements and, finally the full effect of the action on the species at the individual and species scale (NMFS 1999).

The proposed Columbia River Road Omak Creek Bridge Replacement project will have direct and indirect effects on the physical aspects of UCR steelhead habitat in lower Omak Creek. In addition, UCR steelhead may experience direct effects from the proposed project as they are likely to be present in the action area during project construction.

Direct, temporary effects include the following: work area isolation and fish removal, degraded water quality (sediment/turbidity and chemical contamination), disturbance of the streambed substrate habitat element, streambank channel condition and dynamics, and the alteration of riparian reserves. These effects are the result of the nature, extent, and duration of the construction activities in the water and whether rearing fish are present during the time of the activity.

Indirect, long-term effects include degradation of the streambank condition from the placement of riprap, improvements in water quality and flow/hydrology from stormwater treatment and infiltration, better channel condition and dynamics from reduced channel confinement, and better riparian reserve watershed conditions from riparian enhancement. However, these indirect effects will not alter the functional condition of any of the pathways or indicators outside of the action area.

2.1.2.1 Direct Effects

Direct effects are the immediate effects of the project on the species or its habitat. Direct effects result from the agency action and include the effects of interrelated actions and interdependent actions. Excluded are any future Federal actions that are not a direct effect of the action under consideration (and not included in the environmental baseline or treated as indirect effects) (50 CFR 402.02). “Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration” (50 CFR 402.02).

Work Area Isolation and Removal of Fish. Work area isolation and removal of fish are actions designed to avoid the direct injury or death of listed species during project construction activities (e.g. bridge replacement, streambed excavation). As such, they are minimization measures that reduce the likelihood and magnitude of injury or mortality associated with the project. However, the temporary diversion of approximately 216 lineal feet of the creek into the 36-inch pipe bypass by the WSDOT could lead to stranding of juvenile UCR steelhead. Additionally, the diversion of water in the channel into the bypasses will impede salmonid movement. The impacts associated with dewatering are expected to be reduced through the use of a gradual process of dewatering that may enable fish to move with the receding water.

Trained CCT fish biologists will remove any remaining listed fish from the gradually dewatered area using the protocol included in Appendix I. This includes the initial use of block nets, seines and dip nets to capture and/or move fish. This handling has been shown to cause stress in fish, as indicated by increased plasma levels of cortisol and glucose (Frisch and Anderson 2000; Hemre and Krogdahl 1996).

Subsequently, electrofishing may be conducted, but only after less potentially harmful techniques (seines and dip nets) have been used. Electrofishing could kill juvenile steelhead. Physical injuries from electrofishing include internal hemorrhaging, spinal misalignment, or fractured vertebrae. Although the practice is potentially harmful to fish, the electrofishing is intended to further locate residual fish in the isolated work area for removal to reduce injury and mortality. Approximately 98%, or more, of fish captured and handled are expected to survive with no long-term effects, and 1 to 2% are expected to be injured or killed, including delayed mortality because of injury (NMFS 2003a). The likelihood of injury or mortality will be minimized by: (1) using qualified biologists to ensure proper capture, handling, and release of fish (Fisher 2004); and (2) using seines and nets to “herd” or transfer fish prior to any electrofishing; (3) using an appropriate electrofishing protocol (Appendix 1).

Water Quality. Removing the existing bridge and installing a new arched culvert, and related activities, could mobilize sediments and temporarily increase downstream turbidity levels. In the immediate vicinity of the construction area (several hundred feet), the level of turbidity would likely exceed ambient levels by a substantial margin and potentially affect UCR steelhead. The activities that will mobilize sediment are the diverting the stream into the bypass, excavating the roadway fill and historical streambed for the bridge replacement, and diverting the streamflow back into the main channel. Sediment can also enter the water from upland

construction activities such as bank excavation and riparian vegetation removal, and equipment use, if erosion control measures fail. Sediment control measures have a variable failure rate dependant largely on individual contractor. These activities will deliver short-term (hours to a few days) pulses of sediment downstream. However, the proposed action includes measures to decrease the likelihood of exposure and extent of any effects on listed salmonids. These measures include timing inwater work from July 15, 2004 through October 31, 2004, when juvenile abundance can be expected to be low, when river discharge is low, and when weather is generally favorable for construction (dry). Additional conservation measures to minimize sedimentation and turbidity include implementation of a TESC plan. Also, the WSDOT will adhere to the IA with the DOE for water quality, which designates a mixing zone for inwater work during construction. For water bodies with seasonal discharges above 10 cubic feet per second (cfs) and up to 100 cfs at the time of construction, a 200-foot mixing zones is allowed (DOE and WSDOT 1998). Omak creek discharges, collected between 1992 and 2001 during September and October, have ranged from 0.2 cfs to 13.46 cfs (CCT 2002).

Quantifying turbidity levels, and their effect on fish species is complicated by several factors. First, turbidity from an activity will typically decrease as distance from the activity increases. How quickly turbidity levels attenuate is dependent upon the quantity of materials in suspension (*e.g.*, mass or volume), the particle size of suspended sediments, the amount and velocity of ambient water (dilution factor), and the physical/chemical properties of the sediments. Second, the impact of turbidity on fish is not only related to the turbidity levels, but also the particle size of the suspended sediments. Also, the lifestage of the fish at exposure, and water temperature bear on the effects that fish will experience.

For salmonids, turbidity has been linked to a number of behavioral and physiological responses (*i.e.*, gill flaring, coughing, avoidance, increase in blood sugar levels) which indicate some level of stress (Bisson and Bilby 1982; Sigler *et al.* 1984; Berg and Northcote 1985; Servizi and Martens 1992). The magnitude of these stress responses is generally higher when turbidity is increased and particle size decreased (Bisson and Bilby 1982; Servizi and Martens 1987; Gregory and Northcote 1993). Although turbidity may cause stress, Gregory and Northcote (1993) have shown that moderate levels of turbidity (35-150 nephelometric turbidity units) accelerate foraging rates among juvenile chinook salmon, likely because of reduced vulnerability to predators (camouflaging effect). It may, however, be a hyperphagic response to allostatic loading due to stress.

Turbidity arising from the project will be short-lived and have a low potential for causing take. The project includes conservation measures and best management practices (BMPs), such as the TESC plan, to reduce or avoid turbidity impacts. Bridge replacement will occur when listed species are least likely to be present near the project site, minimizing the potential for adverse effects.

Accidental releases of fuels, lubricants, and other construction-related chemicals from equipment working in or near lower Omak Creek could injure or kill UCR steelhead and other aquatic organisms. The implementation of the WSDOT's SPCC conservation measure will minimize

the likelihood of spill reaching fish, as well as the severity of a spill if it occurs. These, in turn, reduce the effects to fish.

Streambed and Bank Disturbance. Following work area isolation and fish removal, the WSDOT will disturb existing riverine substrate and bank material for replacement of the bridge. Approximately 65 cubic yards of bank and historical streambed substrate will be excavated for the precast culvert footings, with approximately 45 cubic yards of streambed excavated if the old bridge footings are removed. Approximately 1,250 square feet of riparian vegetation will be removed by the WSDOT to accommodate the replacement culvert, wider roadway, mechanically-stabilized earth system, and riprap bank stabilization. The project includes conservation measures and best management practices (BMPs), such as the TESC plan, to reduce or avoid these construction impacts.

Streambed and bank disturbance will take place within the isolated work area when listed species are least likely to be present near the project site, minimizing the potential for direct adverse effects. In addition, the WSDOT will implement the construction-related conservation measures and BMPs outlined in the description of the project, to minimize and reduce these effects to listed salmonids. Streambed excavation will cause the temporary loss of macroinvertebrate habitat. Aquatic invertebrates serve as an important source of prey for salmonids, and the loss of their habitat may reduce foraging opportunities for listed steelhead. Effects associated with the disruption of the streambed likely would be short-lived as new invertebrates tend to recolonize disturbed areas (Allan 1995). In the action area, recolonization rates are expected to be rapid because of the small footprint of the disturbance and relatively short time period of construction activities.

2.1.2.2 Indirect Effects

Indirect effects are defined in 50 CFR 402.02 as “those that are caused by the proposed action and are later in time, but still are reasonably certain to occur.” They include the effects on listed species of future activities that are induced by the proposed action and that occur after the action is completed. Indirect effects may occur outside of the area directly affected by the action might include other Federal actions that have not undergone section 7 consultation but will result from the action under consideration.

Water Quality and Flow/Hydrology. The treatment and infiltration of stormwater generated by the 21,160 square feet of realigned roadway impervious surface via the detention/infiltration stormwater system, designed and constructed consistent with the *WSDOT Highway Runoff Manual* (WSDOT 2004), will improve long-term water quality and flow/hydrology. The average daily traffic on Columbia River Road and Moomaw Road is unknown, but is probably fairly low during most of the year, consisting primarily of vehicles associated with agricultural and commercial forest practices. Traffic tends to increase during the summer, with seasonally high recreational use. Although the action area is small relative to the size of the Omak Creek watershed, the treatment of stormwater will contribute to improved water quality, particularly reduced levels of turbidity, polycyclic aromatic hydrocarbons, and metals in Omak Creek. Water temperature, turbidity, dissolved oxygen (DO), pH, nutrients, and toxic chemicals/metals,

all affect water quality and the ability of surface waters to sustain listed salmonids. Each of these factors exhibits natural daily or seasonal fluctuations in magnitude or concentration, and when coupled with the effects of development and stormwater runoff, can exceed the natural range of these factors and alter or impair biological processes (NMFS 2003b).

Infiltration of stormwater runoff will contribute to dampened peak flow and elevated base flows in the watershed. Omak Creek experienced elevated peak flows at least three times in 1998, in response to warm, wet spring conditions. Multiple peak flows such as these indicate that alterations and disturbances exist within the Omak Creek watershed which modify the hydrological characteristics of the basin (CCT 2002). Land conversions significantly influence hydrologic processes, increasing the magnitude, frequency and duration of peak discharges and reducing summer base flows (Booth 1991). These changes occur because of a loss of forest cover, and an increase in the impervious surface, and a replacement of the natural drainage system with an artificial network of storm pipes, drainage ditches and roads (Lucchetti and Fuerstenberg 1993, Booth and Jackson 1997). Roads provide a direct drainage pathway for runoff into the stream system and storm sewer outfalls. Reductions in the natural drainage network and increases in artificial drainage systems shrink the lag time between a rainfall event and the point of peak discharge of stormwater into a stream (Booth and Jackson 1997).

Reduced Channel Confinement. Replacing the existing 21-foot long bridge with a 32.33-foot wide open bottom culvert will reduce the existing channel constriction and allow some channel forming processes to occur. The open bottom culvert, approximately 10 feet wider than the OHWM, will allow the Omak Creek channel to meander somewhat within the culvert and accommodate any grade adjustment resulting from removal of the constriction. A slight improvement in channel condition can be anticipated.

Streambank Stabilization and Removal of Riparian Vegetation. Placing approximately 500 cubic yards of riprap along approximately 265 linear feet of creek channel upstream and downstream of the replacement culvert will stabilize the bank against excessive erosion, a characteristic of the lower Omak Creek watershed, but will degrade the long-term streambank condition. Streambank stabilization reduces the potential for side-channel formation and lateral channel migration in the floodplain, which are natural processes contributing to habitat complexity. These processes contribute to undercut banks and overhead cover which help provide important summer habitat for salmonids (Brusven *et al.* 1986; Beamer and Henderson 1998).

Streambank condition and riparian reserves will be degraded further by the temporary loss of riparian function and LWD recruitment from the removal of 1,250 square feet of riparian vegetation for bridge replacement and roadway realignment. Riparian vegetation links terrestrial and aquatic ecosystems, influences channel processes, contributes organic debris to streams, stabilizes streambanks, and modifies water temperatures (Gregory and Northcote 1993). Elevated water temperatures may adversely affect salmonid physiology, growth and development, alter life history patterns, induce disease, and may exacerbate competitive predator-prey interactions (Spence *et al.* 1996). The WSDOT will minimize these effects by retaining all trees removed during construction for later replanting, and enhance future riparian

reserves by planting new trees along the banks at a 3-to-1 ratio and an additional 20 trees along the north downstream bank. However, riparian function will be lost for a number of years after the project is completed, returning over time to an improved state relative to current conditions.

2.1.2.3 Population-Scale Effects

As detailed in section 2.1.2, NOAA Fisheries has estimated the median population growth rate (λ) for the species affected by this project. Under the environmental baseline, life history diversity has been limited by the influence of hatchery fish, by physical barriers that prevent migration to historical spawning and/or rearing areas, and by water temperature barriers that influence the timing of emergence, juvenile growth rates, and upstream or downstream migration. In addition, hydropower development has profoundly altered the riverine environment and those habitats vital to the survival and recovery of the ESU that is the subject of this consultation.

Pacific salmon and steelhead are also substantially affected by variations in the freshwater and marine environments (Spence *et al.* 1996). Ocean conditions are a key factor in the productivity of these salmon and steelhead populations. Stochastic events in freshwater (flooding, drought, snowpack conditions, volcanic eruptions, etc.) can play an important role in a species' survival and recovery, but those effects tend to be localized compared to the effects associated with the ocean. The survival and recovery of these species depends on their ability to persist through periods of low natural survival due to ocean conditions, climatic conditions, and other conditions outside the action area. Freshwater survival is particularly important during these periods because enough smolts must be produced so that a sufficient number of adults can survive to complete their oceanic migration, return to spawn, and perpetuate the species.

Replacement of the Columbia River Road Omak Creek Bridge will result in short-term impacts to listed UCR steelhead. Conservation measures and BMPs are expected to reduce the potential for direct effects to listed fish from increased turbidity, streambed and bank disturbance, as well as work area isolation and fish removal. The action will negatively affect streambank condition, but will positively affect water quality and flow/hydrology, as well as instream and riparian habitat for listed salmonids in the action area, but is not expected to be significant at the ESU-scale for UCR steelhead.

2.1.3 Cumulative Effects

Cumulative effects are defined as “those effects of future state or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation” (50 CFR 402.02). Future Federal actions that are unrelated to the proposed actions are not considered in this section because they require separate consultation pursuant to section 7 of the ESA.

Land uses in the Omak Creek watershed consist of commercial forestry, livestock grazing, and some agriculture. These activities, with their associated adverse impacts on salmonid habitat, will likely continue. However, the CCT is currently addressing these issues in the Omak Creek

watershed through decommissioning roads and removing cattle grazing from riparian areas. These improvements should reduce or minimize adverse effects from these activities in the future.

However, NOAA Fisheries assumes that other, future non-Federal actions will continue at similar intensities as in recent years. As the human population in the area continues to grow, demand for actions that have the potential to adversely effect listed species likely will continue to increase as well. Each subsequent action by itself may have only a small incremental effect, but taken together they may have a significant effect that will further degrade the watershed's environmental baseline and undermine the improvements in habitat conditions necessary for listed species to survive and recover.

2.1.4 Conclusion

NOAA Fisheries reviewed the direct and indirect effects of the proposed action, including project elements designed to minimize effects, on UCR steelhead and their habitat. NOAA Fisheries evaluated these effects in light of existing conditions in the action area, cumulative effects anticipated in the action area. Based on this analysis, NOAA Fisheries concludes that the proposed action is not likely to jeopardize the continued existence of listed UCR steelhead. NOAA Fisheries used best available scientific and commercial data in this analysis. The determination of no jeopardy was based on the following:

- The direct effects to UCR steelhead from work area isolation and removal of listed fish will be short-term. Stream bypass location and design, fish handling protocol, conservation measures, and BMPs will minimize these effects.
- The direct effects on water quality (sediment and turbidity, and potentially chemical contamination) from project construction will be short-term. Conservation measures and BMPs will minimize these effects.
- The direct effects to streambed substrate and streambank condition from excavation for the culvert replacement and associated riparian vegetation removal will be short-term. Elements of the replacement culvert design, conservation measures, and BMPs will minimize these effects.
- There will be long-term improvements in water quality and flow/hydrology from implementation of stormwater quantity and quality project elements and conservation measures.
- There will be long-term indirect effects from reduced channel confinement with removal of the existing channel constriction, allowing for some channel forming processes to take place.
- There will be long-term indirect degradation to streambank condition from the placement of riprap adjacent to the creek bed.

- There will be short-term effects from the removal of riparian vegetation. However, there will be long-term improvement in riparian reserves from riparian vegetation enhancement.

2.1.5 Reinitiation of Consultation

This concludes formal consultation on the Columbia River Road Omak Creek Bridge Replacement project. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action had been retained (or is authorized by law) and if: (1) the amount or extent of take specified in the Incidental Take Statement is exceeded, or is expected to be exceeded; (2) new information reveals effects of the agency action that may affect listed species in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

2.2 Incidental Take Statement

The ESA at section 9 (16 U.S.C. 1538) prohibits take of endangered species. The prohibition of take is extended to threatened anadromous salmonids by section 4(d) rule (50 CFR 223.203). Take is defined by the statute as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or to attempt to engage in any such conduct” (16 U.S.C. 1532(19)). Harm is defined by regulation as “an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavior patterns, including: breeding, spawning, rearing, migrating, feeding or sheltering” (50 CFR 222.102). Harass is defined as “an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering” (50 CFR 17.3). Incidental take is defined as “takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant” (50 CFR 402.02). The ESA as section 7(o)(2) removes the prohibition from any incidental taking that is in compliance with the terms and conditions (T&Cs) specified in a section 7(b)(4) incidental take statement (16 U.S.C. 1536).

An incidental take statement specifies the effects of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures (RPMs) that are necessary to minimize take and sets forth Terms and Conditions with which the action agency, the applicant, or both, must comply to implement the RPMs.

2.2.1 Amount or Extent of Take Anticipated

As stated in the Environmental Baseline section above, UCR steelhead use the action area for migration, spawning, and rearing. The UCR steelhead are likely to be present in the action area during part of the year when some of the effects of the proposed action will occur. Project

effects include work area isolation and removal of fish, changes in water quality, and modifications to instream and riparian habitat. Therefore, incidental take of UCR steelhead is reasonably certain to occur.

NOAA Fisheries expects take of UCR steelhead to occur in the form of injury or mortality from work area isolation and removal of fish, particularly from electrofishing. However, only 1 to 2% of the fish captured and handled are expected to be injured or killed, including delayed mortality because of injury. Because the residual number of fish exposed to electrofishing is expected to be low, incidental take from fish removal is anticipated to be two listed fish.

For habitat-modifying construction activities, NOAA Fisheries cannot estimate a specific amount of incidental take of individual listed fish, despite the use of the best available scientific and commercial data. There is no linear relationship between habitat condition and fish presence, and the presence of anadromous fish is highly variable over time. In cases where the precise amount of individual fish taken cannot be predicted, NOAA Fisheries characterizes the amount of take as “unquantifiable.” NOAA Fisheries uses a surrogate to measure the extent of take based on the extent of habitat affected. Therefore, the estimated extent of habitat affected by construction activities represents the extent of take anticipated in this incidental take statement.

The extent of incidental take anticipated for habitat-modifying activities in this incidental take statement is that which would occur from the construction along 406 linear feet of Omak Creek at the intersection of Columbia River Road and Moomaw Road, 45 feet upstream and 245 downstream of the 116-foot replacement culvert, for streambed and bank disturbance associated with culvert excavation and installation and bank stabilization. For water quality effects, take is exempted for turbidity increases from 50 feet upstream of the project area to 200 feet downstream of the project area, for expected flows up to 15 cfs. In addition, incidental take is exempted for riparian vegetation removal, along 450 feet of the banks of the creek, 50 feet upstream and 400 feet downstream of the existing bridge.

The estimated number of listed fish taken via work area isolation and removal of fish, and the extent of habitat affected from the construction activities (e.g., sediment mobilization, and short-term degradation to the streambed and riparian habitat) are the thresholds for reinitiating consultation. Should any of these limits be exceeded during project activities, the reinitiation provisions of this Opinion apply.

2.2.2 Reasonable and Prudent Measures

The RPMs are non-discretionary measures to minimize take, that may or may not already be part of the description of the proposed action. They must be implemented as binding conditions for the exemption in section 7(o)(2) to apply. The FHWA has the continuing duty to regulate the activities covered in this incidental take statement. If the FHWA fails to require the applicants to adhere to the T&Cs of the incidental take statement through enforceable terms that are added to the permit or grant document, or fails to retain the oversight to ensure compliance with these T&Cs, the protective coverage of section 7(0)(2) may lapse. NOAA Fisheries believes that

activities carried out in a manner consistent with these RPMs, except those otherwise identified, will not necessitate further sit-specific consultation. Activities which do not comply with all relevant RPMs will require further consultation.

NOAA Fisheries believes that the following RPMs are necessary and appropriate to minimize take of listed fish resulting from implementation of the action.

1. The FHWA shall ensure minimization of incidental take from project construction activities within the ordinary high water mark (OHWM).
2. The FHWA shall ensure minimization of incidental take from construction activities within streambed, riparian, and adjacent upland areas.
3. The FHWA shall ensure minimization of the incidental take of habitat for listed species by implementing measures to minimize impacts to instream and riparian areas.
4. The FHWA shall ensure the effectiveness of fish removal, erosion control, and revegetation incidental take minimization through a monitoring and reporting program. (50 CFR 402.14(i)(1)(iv) and (I)(3)).

2.2.3 Terms and Conditions

To comply with ESA section 7 and be exempt from the take prohibitions as outlined in section 9 of the ESA, the FHWA must ensure compliance with the following T&Cs which implement the RPMs described above. The proposed action, conservation measures, and BMPs, as summarized in section 1.2 of this Opinion, and the fish removal protocol, Appendix I, are incorporated here by reference as T&Cs of this Incidental Take Statement. The above referenced and following T&Cs are non-discretionary:

1. To implement RPM No.1 (construction activities within the OHWM), the FHWA shall ensure that:
 - a. Construction methods will not cause turbidity to extend beyond 200 feet downstream of the project area (as described in WAC-201-100 and WAC-201-110). The use of a mixing zone is intended for brief periods of time (a few hours or a few days) and is not intended as authorization to exceed turbidity standards for the duration of the project. Additionally, a mixing zone is only allowed after the implementation of appropriate best management practices to avoid or minimize disturbance of sediment.
2. To implement RPM No. 2 (streambed, riparian, and upland construction activities), the FHWA shall ensure that:
 - a. The Temporary Erosion and Sediment Control (TESC) plan to eliminate or minimize, to the maximum extent practicable, the movement of soils and sediments both into the creek

from all upland construction areas and within the creek shall be included as provisions in the contract and shall be implemented.

- b. Boundaries of clearing limits associated with site access and construction shall be marked to minimize disturbance of riparian vegetation, wetlands and other sensitive sites.
 - c. Existing roadways or travel paths shall be used whenever possible.
 - d. Heavy equipment shall be limited to that with the least adverse effects on the environment (*e.g.*, minimally sized, rubber tired).
 - e. Vehicles and equipment shall only cross the streambed and riparian areas within the upstream and downstream limits of construction.
 - f. Hydraulic fluid in heavy equipment that will operate over the water or below the OHWM will be replaced with mineral oil or other biodegradable, non-toxic hydraulic fluid.
 - g. Vehicle and equipment cleaning, maintenance, refueling, and fuel storage shall take place a minimum of 100 feet from the top of any streambank or wetland.
 - h. Stationary power equipment operated within 100 feet of the top of any streambank or wetland shall be diapered to prevent leaks.
 - i. Adequate treatment shall be provided for all wash and rinse water prior to upland infiltration.
3. To implement RPM No. 3 (instream and riparian habitat protection), the FHWA shall ensure that:
- a. Rock used for construction shall be clean, angular rock, of the minimum possible size. Rock will be “placed” not dumped, and will be installed to withstand the 100-year peak flow.
 - b. Alteration of native vegetation shall be minimized. Where native vegetation is altered, measures shall be taken to ensure that roots are left intact, reducing erosion while still allowing workspace.
 - c. Any topsoil removed shall be stockpiled for redistribution in the project area.
 - d. Disturbed riparian areas replanted with native woody species shall have a minimum planting density of 3 feet on-center for cuttings and 6 feet on-center for rooted trees and shrubs.
 - e. Fencing shall be installed to allow new plantings to establish and prevent trampling by livestock or humans.

- f. Surface application of nitrogen fertilizer shall not take place within 50 feet of any water in the action area.
 - g. Invasive exotic plant species (*e.g.*, Himalayan blackberry) shall be controlled within the project area. However, chemical treatments shall not be used in their control.
4. To implement RPM No. 4 (effectiveness monitoring and reporting), the FHWA shall ensure that:
- a. All salmonids encountered during work area isolation and fish-movement operations shall be documented by Inwater Construction Monitoring Report forms (Appendix II), or equivalent. The FHWA shall submit monitoring reports to NOAA Fisheries no later than December 31 of construction year. Although fish kills are not expected to occur as a part of this action, all salmonid carcasses shall be collected and delivered to NOAA Fisheries for identification, at the FHWA's expense.
 - b. Erosion control T&Cs, including conservation measures and BMPs, shall be monitored and corrective action taken if necessary to ensure protection of riparian areas and waterways.
 - c. Riparian plantings shall be monitored yearly for three years to ensure a minimum of 80% cumulative survival. Mortalities shall be replaced to bring the site into conformance. If failed plantings are deemed unlikely to succeed, replacement plantings shall be conducted at other appropriate locations in the project area. A report on the results of the riparian monitoring program shall be submitted to NOAA Fisheries at the end of each year during the three year monitoring period.
 - d. All reports shall be sent to National Marine Fisheries Service, Washington State Habitat Office, Attention Neil Rickard, 510 Desmond Drive SE, Suite 103, Lacey, Washington 98503.

3.0 MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT

3.1 Background

The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established procedures designed to identify, conserve, and enhance EFH for those species regulated under a Federal fisheries management plan. Pursuant to the MSA:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH (section 305(b)(2));

- NOAA Fisheries must provide conservation recommendations for any Federal or state activity that may adversely affect EFH (section 305(b)(4)(A));
- Federal agencies must provide a detailed response in writing to NOAA Fisheries within 30 days after receiving EFH conservation recommendations. The response must include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the effect of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NOAA Fisheries, the Federal agency must explain its reasons for not following the recommendations (section 305(b)(4)(B)).

Essential Fish Habitat means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA section 3). For the purpose of interpreting this definition of EFH: Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50 CFR 600.110). Adverse effect means any impact which reduces quality and/or quantity of EFH, and may include direct (*e.g.*, contamination or physical disruption), indirect (*e.g.*, loss of prey or reduction in species fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810).

An EFH consultation with NOAA Fisheries is required regarding any Federal agency action that may adversely affect EFH, including actions that occur outside EFH, such as certain upstream and upslope activities.

The objectives of this EFH consultation are to determine whether the proposed action may adversely affect designated EFH and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH.

3.2 Identification of Essential Fish Habitat

Pursuant to the MSA, the Pacific Fisheries Management Council (PFMC 1999) has designated EFH for three species of Federally-managed Pacific salmon: chinook, coho, and Puget Sound pink salmon (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of the impacts to these species' EFH from the proposed action is based on these descriptions and information provided by the FHWA.

3.3 Proposed Action

The proposed action and action area are detailed in sections 1.2 and 1.3 of this document. The action area includes habitats that have been designated as EFH for various life-history stages of chinook salmon.

3.4 Effects of the Proposed Action

As described in sections 2.2 and 2.3 of this document and in the EFH analysis provided by the WSDOT, the proposed action will result in detrimental short-term impacts to a variety of habitat parameters but will provide long-term habitat benefits. However, as chinook salmon do not currently inhabit the Omak Creek watershed there will be no short term impacts to chinook salmon EFH. Should chinook salmon successfully be re-introduced into the watershed, they will benefit from the long-term improvement in chinook salmon EFH.

3.5 Conclusion

NOAA Fisheries determines that the proposed action will not adversely affect designated EFH for chinook salmon.

3.6 Essential Fish Habitat Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the MSA, NOAA Fisheries is required to provide EFH conservation recommendations to Federal agencies regarding actions which may adversely affect EFH. However, as there are no adverse effects to chinook salmon EFH from the proposed action, NOAA Fisheries does not have any EFH conservation recommendations.

3.7 Supplemental Consultation

The FHWA must reinitiate EFH consultation with NOAA Fisheries if the proposed action is substantially revised in a manner that may adversely affect EFH, or if new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920(l)).

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APPENDIX I - Fish Removal Protocol

Isolation of the work area, fish removal and release of fish shall be conducted or directed by a biologist who possesses the competence to ensure the safe handling of all Endangered Species Act (ESA) listed fish, and who is also experienced with work area isolation.

1. Isolation of the Work Area: Installation of block nets will occur at predetermined locations, based on site characteristics, to prevent fish and other aquatic wildlife from moving into the area. When selecting a suitable site, look for an area that has desirable attributes such as slower flows, suitable locations for stake and/or sandbag placement. Whenever conditions allow, the downstream block net shall be placed first. The upstream block net shall then be used as a seine to herd fish from the downstream block net location upstream to the point selected for the upstream block net installation. If feasible, this action will potentially move significant numbers of fish upstream, out of the impact area prior to other removal methods. If herding fish upstream is prohibitive because of flow velocities, install the upstream block net first, then the herd fish downstream and install the downstream block net. Both approaches have the added benefit of relocating fish without physically handling them.

Block net mesh size, length, type of material, and depth will vary based on site conditions. The directing biologist on site will base the design of block nets on specific site characteristics such as water depth, velocity and channel width. Typical block net material is 9.5 millimeter stretched mesh. Block nets shall remain in place until inwater work is completed. Block nets will require leaf and debris removal. An individual should be assigned the responsibility of frequently checking the nets to maintain their effectiveness and integrity. The frequency of such checks will be determined on a case-by-case basis, dependent upon the system, season and weather conditions. An individual shall be stationed at the downstream block net continuously during electrofishing sessions, to recover stunned fish in the event they are washed downstream and pinned against the net. Block nets need to be secured along both banks and in-channel to prevent failure during unforeseen rain events or debris accumulation. Some locations may require additional block net support (examples include galvanized hardware cloth and metal fence posts).

2. Fish Removal: The following methods provide alternatives for removal of fish from the area between the block nets. These methods are given in order of preference and for many locations, a combination of methods will need to be applied. The use of visual observation techniques should be considered for evaluation of removal method effectiveness and to identify specific locations of fish concentrations prior to removal attempts. Use of a seine net shall be the preferred method. The remaining methods shall be used when seining is not possible or to enhance the effectiveness of seining.
 - Seines made from 9.5 mm stretched nylon mesh shall be used to remove fish from the isolated stream reach. Seine design will be dependent upon site-specific characteristics. The on-site biologist will plan seining procedures based on an evaluation of site characteristics.

- On projects where dewatering will occur aquatic life will be collected by hand or with dip nets as the site is slowly dewatered.
- Capture of fish by personnel in water or on shore using hand held nets when in water work will occur without dewatering (typically used in conjunction with seining).
- Baited minnow traps (typically used in conjunction with seining).
- Electrofishing shall be performed only when other methods have been determined to be unfeasible or ineffective by the directing biologist. Electrofishing equipment uses voltage and currents that can cause serious injury to fish removal personnel. Electrofishing studies document injury rates to fish even at low settings. Therefore, use of this method is discouraged when unnecessary. The potential for injury to fish removal personnel or ESA-listed fish may outweigh the benefit of capture and relocation of all fish present in the work area. The injury potential of electrofishing on fish has been related to fish size in research literature. Therefore, the following guidelines are for juvenile ESA-listed fish and **exclude adult ESA-listed fish**. The following conditions shall apply to use of electrofishing as a means of fish removal:
 - i. Electrofishing shall only be conducted when a biologist with 100 hours of electrofishing experience is on site to conduct or direct all activities associated with capture attempts. The directing biologist shall be familiar with the principles of electrofishing including the interrelated effects of voltage, pulse width and pulse rate on fish species and associated risk of injury/mortality. The directing biologist shall have knowledge regarding galvanotaxis, narcosis and tetany, their respective relationships to injury/mortality rates, and have the ability to recognize these responses when exhibited by fish.
 - ii. The following chart shall be used as guidelines for electrofishing in water likely to support ESA-listed juvenile fish. Visual observation of the size classes of fish in the work area is helpful to avoid injury to larger fish by the mistaken assumption that they are not present.

	Initial Setting	Conductivity ($\mu\text{S}/\text{cm}$)	Maximum Settings
Voltage	100 V	less than 100	1100 V
		100-300	800 V
		greater than 300	400 V
Pulse Width	500 μs		5 ms
Pulse Rate	15 Hz		60 Hz

- iii. Seasonal timing restrictions for conducting electrofishing shall be dependent upon the river system, fish composition and an analysis of the life history of documented species. Spawning adults and redds with incubating eggs should not be subjected to the effects of electrofishing. As a general rule, anadromous waters should not be

electrofished from October 15 to May 15 and resident waters from November 1 to May 15. It shall be the responsibility of the directing biologist to research and assess the time of year (for each river system) when electrofishing is appropriate.

- iv. Each session shall begin with low settings for pulse width and pulse rate. If fish present in the area being electrofished do not exhibit an appropriate response the settings should be gradually increased until the appropriate response is achieved (galvanotaxis). Conducting electrofishing activity at the minimal effective settings is imperative because as pulse width and pulse rate increase fish injury rates increase. Minimum effective voltage settings are dependent upon water conductivity and will need to increase as conductivity decreases. Higher voltages elevate the risk of serious injury to fish removal personnel. Use the lowest effective setting to minimize personnel safety concerns and help minimize fish injury/mortality rates.
- v. The operator shall not allow fish to come into contact with the anode. The zone of potential fish injury is 0.5 m from the anode. Extra care shall be taken near inwater structures, undercut banks, in shallow waters, or high-density fish areas. Voltage gradients may be abnormally intensified in these areas and fish are more likely to come into close contact with the anode. Consider lowering the voltage setting in shallow water sections. When electrofishing areas near undercut banks or where structures may provide cover for fish use the anode to draw the fish out by placing the activated anode near the area fish are likely present and slowly draw the anode away. Fish experiencing galvanotaxis will be attracted to the anode and will swim away from the structure toward the anode so that they can be netted. This will not work on fish that experience narcosis or tetany. Therefore, fish response should be noted in adjacent areas prior to attempts made near structures to avoid prolonged exposure of fish to the electrical field that are in an immobilized state.
- vi. Electrofishing shall be performed in a manner that minimizes harm to fish. Once an appropriate fish response (galvanotaxis) is noted, the stream segment shall be worked systematically, moving the anode continuously in a herringbone pattern through the water. Do not electrofish one area for an extended period of time. The number of passes shall be kept to a minimum. Adequate numbers of personnel shall be on-site to minimize the number of passes required for fish removal. Adequate staff to net, recover and release fish in a prompt manner shall be present. Fish shall be removed from the electrical field immediately and recovered when necessary. Fish shall not be held in net while continuing to capture additional fish.
- vii. Carefully observe and document the condition of the captured fish. Dark bands on the body and extended recovery times are signs of injury or handling stress. When such signs are noted, the settings for the electrofishing unit and/or manner in which the electrofishing session is proceeding need adjustment. These characteristics may be an indication that electrofishing has become an inappropriate removal method for that specific site. Specimens shall be released immediately upstream of the block

nets in an area that provides refuge. Each fish shall be completely recovered prior to release (see Fish Release section).

- viii. Electrofishing shall not occur when turbidity reduces visibility to less than 0.5 meters and shall not occur when water temperature is above 18°C or below 4°C.
- Pumps used to temporarily bypass water around work sites shall be fitted with mesh screens to prevent aquatic life from entering the intake hose of the pump. The screen shall be installed as a precautionary measure to protect any fish and other wildlife, which may have been missed in the isolation and fish removal process. The screens will also prevent aquatic life from entering the intake hose if a block net should fail. Screens shall be placed approximately 2-4 feet from the end of the intake hose to assure fish are not pinned upon the screen. Screening techniques must be in compliance with Washington State Laws RCW 77.16.220, RCW 77.55.040 and RCW 77.55.070.
- All fish shall be removed from stream crossing structures within the isolated stream reach. Connecting rod snakes may be used to help move fish out of the structure. The connecting rod snake is made of wood sections approximately three feet in length. As the snake is wiggled slowly through the pipe, noise and turbulence will evacuate the fish without injury.
3. Fish Release: For the period between capture and release, all captured aquatic life shall be immediately put into dark colored five gallon buckets filled with clean stream water. Fish removal personnel shall provide: a healthy environment for the stressed fish; minimum holding periods; and low fish densities in holding buckets to avoid effects of overcrowding. Large fish shall be kept separate from smaller prey-sized fish to avoid predation during containment. Water-to-water transfers shall occur whenever possible and the use of sanctuary nets are encouraged. Frequent monitoring of bucket temperature and well-being of the specimens will be done to assure that all specimens will be released unharmed. Potential shade areas for fish holding periods and supplemental oxygen shall be considered in designing fish handling operations. Captured aquatic life will be released immediately upstream of the isolated stream reach in a pool or area that provides cover and flow refuge. Each fish shall be completely recovered prior to release. One person shall be designated to transport specimens in a timely manner to the site selected for upstream release. All work area isolation, fish removal and fish release activity shall be thoroughly documented. Specifically, any injuries or mortalities to ESA-listed or proposed species shall be provided to National Marine Fisheries Service (NOAA Fisheries) or United States Fish and Wildlife Service (USFWS), depending on which agency has jurisdiction over that species.

APPENDIX II - Inwater Construction Monitoring Report

Columbia River Road Omak Creek Bridge Replacement (2004/00227)

Start Date: _____

End Date: _____

Waterway: _____ Okanogan County

Construction Activities:

Number of fish observed: _____

Number of salmonid juveniles observed (what kind?):

Number of salmonid adults observed (what kind?):

What were fish observed doing prior to construction? _____

What did the fish do during and after construction?

Number of fish stranded as a result of this activity: _____

How long were the fish stranded before they were captured and released to flowing water?

Number of fish that were killed during this activity: _____

Send report to:

National Marine Fisheries Service, Washington State Habitat Branch, Attention Neil Rickard,
510 Desmond Dr. SE, Suite 103, Lacey, WA 98503.